P#8

1644

RAW SEQUENCE LISTING   DATE: 08/18/2000
PATENT APPLICATION: US/09/294,298   TIME: 12:46:34

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Output Set: N:\CRF3\08182000\I294298.raw

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 3 <110> APPLICANT: HUGANIR, RICHARD L.
 4         KIM, GJEEHAE
 6 <120> TITLE OF INVENTION: SIGNAL TRANSDUCING SYNAPTIC MOLECULES AND USES THEREOF
 8 <130> FILE REFERENCE: 48235/1699
10 <140> CURRENT APPLICATION NUMBER: 09/294,298
11 <141> CURRENT FILING DATE: 1999-04-19
13 <150> PRIOR APPLICATION NUMBER: 60/082,690
14 <151> PRIOR FILING DATE: 1998-04-22
16 <150> PRIOR APPLICATION NUMBER: 60/082,717
17 <151> PRIOR FILING DATE: 1998-04-23
19 <160> NUMBER OF SEQ ID NOS: 21
21 <170> SOFTWARE: PatentIn Ver. 2.1
23 <210> SEQ ID NO: 1
24 <211> LENGTH: 4272
25 <212> TYPE: DNA
26 <213> ORGANISM: Unknown Organism
28 <220> FEATURE:
29 <223> OTHER INFORMATION: Description of Unknown Organism: mammalian
30         SYNGAP-A
32 <220> FEATURE:
33 <221> NAME/KEY: CDS
34 <222> LOCATION: (1..3879, 3883..4272)
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38 Met Ser Tyr Ala Pro Phe Arg Asp Val Arg Gly Pro Pro Met His Arg
39  1               5                  10                  15
41 acc caa tac gtt cat tcc ccg tat gac cgt ccc ggt tgg aac ccc cgg      96
42 Thr Gln Tyr Val His Ser Pro Tyr Asp Arg Pro Gly Trp Asn Pro Arg
43               20                  25                  30
45 ttc tgc atc atc tct ggg aac cag ctg ctc atg ctg gat gag gat gag     144
46 Phe Cys Ile Ile Ser Gly Asn Gln Leu Leu Met Leu Asp Glu Asp Glu
47           35                  40                  45
49 ata cac ccc ctt ctg atc cgc gac cgg agg agc gag tcc agc cga aac     192
50 Ile His Pro Leu Leu Ile Arg Asp Arg Arg Ser Glu Ser Ser Arg Asn
51       50                  55                  60
53 aaa ctg ctg aga cgc acc gtc tct gtg cca gtg gag ggg cgg ccc cac     240
54 Lys Leu Leu Arg Arg Thr Val Ser Val Pro Val Glu Gly Arg Pro His
55  65                  70                  75                  80
57 ggc gag cat gaa tac cac ttg ggt cgc tcg agg agg aag agt gtc ccc     288
58 Gly Glu His Glu Tyr His Leu Gly Arg Ser Arg Arg Lys Ser Val Pro
59               85                  90                  95
61 ggg ggg aaa cag tac agc atg gaa gcc gcc ccc gct gcg ccc ttc cgg     336
62 Gly Gly Lys Gln Tyr Ser Met Glu Ala Ala Pro Ala Ala Pro Phe Arg
63              100                 105                 110
65 ccc tcg caa ggc ttc ctg agc cgg agg cta aaa agc tcc atc aaa cgt     384
66 Pro Ser Gln Gly Phe Leu Ser Arg Arg Leu Lys Ser Ser Ile Lys Arg
67              115                 120                 125
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 69 aca aag tca caa ccc aaa ctt gac cgg acc agc agc ttt cga cag atc        432
 70 Thr Lys Ser Gln Pro Lys Leu Asp Arg Thr Ser Ser Phe Arg Gln Ile
 71     130             135             140
 73 ctg cct cgc ttc cga agt gct gac cat gac cgg gcc cgg ctg atg cag        480
 74 Leu Pro Arg Phe Arg Ser Ala Asp His Asp Arg Ala Arg Leu Met Gln
 75 145             150             155             160
 77 agc ttc aag gag tct cac tcc cat gag tcc ctg ctg agt ccc agc agt        528
 78 Ser Phe Lys Glu Ser His Ser His Glu Ser Leu Leu Ser Pro Ser Ser
 79             165             170             175
 81 gct gct gag gcc ctg gag ctc aac ctg gat gaa gac tcc att atc aag        576
 82 Ala Ala Glu Ala Leu Glu Leu Asn Leu Asp Glu Asp Ser Ile Ile Lys
 83             180             185             190
 85 cca gta cac agc tcc atc ctg ggc cag gag ttc tgc ttt gag gta aca        624
 86 Pro Val His Ser Ser Ile Leu Gly Gln Glu Phe Cys Phe Glu Val Thr
 87     195             200             205
 89 aca tcg tct ggg aca aaa tgt ttt gcc tgt cgg tct gca gcc gaa agg        672
 90 Thr Ser Ser Gly Thr Lys Cys Phe Ala Cys Arg Ser Ala Ala Glu Arg
 91     210             215             220
 93 gac aaa tgg att gag aat cta cag agg gct gtg aaa ccc aac aag gac        720
 94 Asp Lys Trp Ile Glu Asn Leu Gln Arg Ala Val Lys Pro Asn Lys Asp
 95 225             230             235             240
 97 aac agc cgc cgg gta gat aac gtg ctg aaa cta tgg atc ata gaa gct        768
 98 Asn Ser Arg Arg Val Asp Asn Val Leu Lys Leu Trp Ile Ile Glu Ala
 99             245             250             255
101 cga gag ctg ccc ccc aag aag cga tat tac tgc gag tta tgc ctg gac        816
102 Arg Glu Leu Pro Pro Lys Lys Arg Tyr Tyr Cys Glu Leu Cys Leu Asp
103             260             265             270
105 gac atg ctc tat gca cgg acc act tcc aag ccc cgc tca gcc tca gga        864
106 Asp Met Leu Tyr Ala Arg Thr Thr Ser Lys Pro Arg Ser Ala Ser Gly
107     275             280             285
109 gac act gtc ttt tgg ggc gag cac ttc gag ttt aac aac ctg cct gct        912
110 Asp Thr Val Phe Trp Gly Glu His Phe Glu Phe Asn Asn Leu Pro Ala
111     290             295             300
113 gtc cgg gcg ctg cgg ctg cat ctg tac cgt gac tcg gac aaa aag cgg        960
114 Val Arg Ala Leu Arg Leu His Leu Tyr Arg Asp Ser Asp Lys Lys Arg
115 305             310             315             320
117 aag aag gac aag gca ggc tac gtt ggc ctg gtg act gtt cca gtg gcc       1008
118 Lys Lys Asp Lys Ala Gly Tyr Val Gly Leu Val Thr Val Pro Val Ala
119             325             330             335
121 acc ctg gct ggg cgc cac ttc aca gag cag tgg tac ccc gtg acc ctg       1056
122 Thr Leu Ala Gly Arg His Phe Thr Glu Gln Trp Tyr Pro Val Thr Leu
123             340             345             350
125 cca aca gga agt ggg ggc tct ggg ggt atg ggc tcg ggg gga gga ggg       1104
126 Pro Thr Gly Ser Gly Gly Ser Gly Gly Met Gly Ser Gly Gly Gly Gly
127     355             360             365
129 ggg tca ggg ggc ggc tca ggg ggc aaa ggg aaa gga ggc tgt cct gct       1152
130 Gly Ser Gly Gly Gly Ser Gly Gly Lys Gly Lys Gly Gly Cys Pro Ala
131     370             375             380
133 gtg cgg ctg aag gcc cgt tac cag aca atg agt atc ctg ccc atg gag       1200
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134 Val Arg Leu Lys Ala Arg Tyr Gln Thr Met Ser Ile Leu Pro Met Glu
135 385                 390                 395                 400
137 cta tat aag gag ttt gca gaa tat gtg acc aac cac tac cgc atg ctg      1248
138 Leu Tyr Lys Glu Phe Ala Glu Tyr Val Thr Asn His Tyr Arg Met Leu
139                 405                 410                 415
141 tgt gcc gtg ctg gag ccc gcc ctc aat gtc aag ggc aag gag gag gtc      1296
142 Cys Ala Val Leu Glu Pro Ala Leu Asn Val Lys Gly Lys Glu Glu Val
143                 420                 425                 430
145 gct agt gca ctg gtt cac atc ctg caa agc aca ggc aag gcc aag gac      1344
146 Ala Ser Ala Leu Val His Ile Leu Gln Ser Thr Gly Lys Ala Lys Asp
147             435                 440                 445
149 ttc ctt tca gac atg gcc atg tca gag gta gac cgg ttc atg gag cgg      1392
150 Phe Leu Ser Asp Met Ala Met Ser Glu Val Asp Arg Phe Met Glu Arg
151     450                 455                 460
153 gaa cac ctc ata ttc cgc gag aac acg ctc gcc act aaa gcc ata gaa      1440
154 Glu His Leu Ile Phe Arg Glu Asn Thr Leu Ala Thr Lys Ala Ile Glu
155 465                 470                 475                 480
157 gag tat atg aga ctg att ggc cag aaa tac ctc aag gat gcc att ggg      1488
158 Glu Tyr Met Arg Leu Ile Gly Gln Lys Tyr Leu Lys Asp Ala Ile Gly
159                 485                 490                 495
161 gag ttc atc cgg gct ctg tat gaa tct gag gag aac tgt gaa gta gac      1536
162 Glu Phe Ile Arg Ala Leu Tyr Glu Ser Glu Glu Asn Cys Glu Val Asp
163             500                 505                 510
165 ccc atc aag tgc aca gcg tcc agt ctg gca gag cac cag gcc aac ctg      1584
166 Pro Ile Lys Cys Thr Ala Ser Ser Leu Ala Glu His Gln Ala Asn Leu
167             515                 520                 525
169 cgg atg tgc tgt gag ttg gcc ctg tgc aag gtg gtc aac tcc cat tgc      1632
170 Arg Met Cys Cys Glu Leu Ala Leu Cys Lys Val Val Asn Ser His Cys
171 530                 535                 540
173 gtg ttc ccg agg gag ctg aag gag gtg ttt gca tca tgg cgg ctg cgc      1680
174 Val Phe Pro Arg Glu Leu Lys Glu Val Phe Ala Ser Trp Arg Leu Arg
175 545                 550                 555                 560
177 tgt gca gag cgg ggc cgg gag gac att gct gac agg ctg atc agc gcc      1728
178 Cys Ala Glu Arg Gly Arg Glu Asp Ile Ala Asp Arg Leu Ile Ser Ala
179                 565                 570                 575
181 tcg ctc ttc ctg cgc ttc ctc tgc ccg gcc atc atg tcg ccc agt ctg      1776
182 Ser Leu Phe Leu Arg Phe Leu Cys Pro Ala Ile Met Ser Pro Ser Leu
183                 580                 585                 590
185 ttt gga ctg atg cag gag tac cca gat gag cag acc tca cga acc ctc      1824
186 Phe Gly Leu Met Gln Glu Tyr Pro Asp Glu Gln Thr Ser Arg Thr Leu
187             595                 600                 605
189 acc ctc atc gcc aag gtt atc cag aac ctg gcc aac ttt tcc aag ttt      1872
190 Thr Leu Ile Ala Lys Val Ile Gln Asn Leu Ala Asn Phe Ser Lys Phe
191     610                 615                 620
193 acc tca aag gag gac ttc ctg ggc ttc atg aac gag ttt ctg gag ctg      1920
194 Thr Ser Lys Glu Asp Phe Leu Gly Phe Met Asn Glu Phe Leu Glu Leu
195 625                 630                 635                 640
197 gag tgg ggt tct atg cag caa ttc ttg tat gag ata tcc aac ctg gac      1968
198 Glu Trp Gly Ser Met Gln Gln Phe Leu Tyr Glu Ile Ser Asn Leu Asp
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199                    645                  650                  655
201 aca ctg acc aac agc agc agt ttt gag ggc tac ata gac ttg ggc cgc        2016
202 Thr Leu Thr Asn Ser Ser Ser Phe Glu Gly Tyr Ile Asp Leu Gly Arg
203                    660                  665                  670
205 gag ctc tcc aca ctt cac gcc ctg ctc tgg gag gtg ctg ccc cag ctc        2064
206 Glu Leu Ser Thr Leu His Ala Leu Leu Trp Glu Val Leu Pro Gln Leu
207                    675                  680                  685
209 agc aag gaa gcc ctc ctg aag ctg ggc ccg ctg ccc cgg ctc ctc agc        2112
210 Ser Lys Glu Ala Leu Leu Lys Leu Gly Pro Leu Pro Arg Leu Leu Ser
211                    690                  695                  700
213 gac atc agc aca gcc ctg agg aac cct aac atc caa agg cag ccg agc        2160
214 Asp Ile Ser Thr Ala Leu Arg Asn Pro Asn Ile Gln Arg Gln Pro Ser
215 705                    710                  715                  720
217 cgc cag agc gag cgc gct cgg tct cag ccc atg gtg ctg cgc ggg ccg        2208
218 Arg Gln Ser Glu Arg Ala Arg Ser Gln Pro Met Val Leu Arg Gly Pro
219                    725                  730                  735
221 tca gcc gag atg cag ggc tac atg atg cgg gac ctc aac agc tcc atc        2256
222 Ser Ala Glu Met Gln Gly Tyr Met Met Arg Asp Leu Asn Ser Ser Ile
223                    740                  745                  750
225 gac ctt cag tcc ttc atg gct cga ggc ctc aac agc tct atg gac atg        2304
226 Asp Leu Gln Ser Phe Met Ala Arg Gly Leu Asn Ser Ser Met Asp Met
227                    755                  760                  765
229 gct cgc ctc ccc tcc cca acc aag gag aaa ccc ccg ccg ccc cct ccc        2352
230 Ala Arg Leu Pro Ser Pro Thr Lys Glu Lys Pro Pro Pro Pro Pro Pro
231                    770                  775                  780
233 ggt ggg ggt aaa gac ctg ttc tat gtg agc cgg cca cca ctg gcc cgg        2400
234 Gly Gly Gly Lys Asp Leu Phe Tyr Val Ser Arg Pro Pro Leu Ala Arg
235 785                    790                  795                  800
237 tcc tcc cca gca tac tgc acg agc agc tcg gac atc aca gag ccg gag        2448
238 Ser Ser Pro Ala Tyr Cys Thr Ser Ser Ser Asp Ile Thr Glu Pro Glu
239                    805                  810                  815
241 cag aag atg ctg agt gtc aac aag agt gtg tcc atg ctg gac ctg cag        2496
242 Gln Lys Met Leu Ser Val Asn Lys Ser Val Ser Met Leu Asp Leu Gln
243                    820                  825                  830
245 ggc gac ggg cct ggg ggc cgc ctt aac agc agt agt gtt tcc aac ctg        2544
246 Gly Asp Gly Pro Gly Gly Arg Leu Asn Ser Ser Ser Val Ser Asn Leu
247                    835                  840                  845
249 gca gct gtt ggg gac ctg ttg cac tca agc cag gct tca ctg aca gca        2592
250 Ala Ala Val Gly Asp Leu Leu His Ser Ser Gln Ala Ser Leu Thr Ala
251 850                    855                  860
253 gcc ttg ggg ttg cgg cct gca cct gcc ggg cgc ctc tcc caa ggg agt        2640
254 Ala Leu Gly Leu Arg Pro Ala Pro Ala Gly Arg Leu Ser Gln Gly Ser
255 865                    870                  875                  880
257 ggc tct tcc atc aca gca gcc ggc atg cgc ctc agc cag atg ggt gtc        2688
258 Gly Ser Ser Ile Thr Ala Ala Gly Met Arg Leu Ser Gln Met Gly Val
259                    885                  890                  895
261 act acg gat ggt gtc ccc gcc cag caa ctg cgc atc cct ctt tcc ttc        2736
262 Thr Thr Asp Gly Val Pro Ala Gln Gln Leu Arg Ile Pro Leu Ser Phe
263                    900                  905                  910
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265 cag aac cct ctc ttc cat atg gct gcc gat gga cca ggg ccc cca gca      2784
266 Gln Asn Pro Leu Phe His Met Ala Ala Asp Gly Pro Gly Pro Pro Ala
267         915             920             925
269 ggc cat gga ggg agc agt ggc cat ggt cca cct tcc tcc cat cac cac      2832
270 Gly His Gly Gly Ser Ser Gly His Gly Pro Pro Ser Ser His His His
271         930             935             940
273 cac cac cac cat cac cat cac cga ggg gga gaa ccc cca ggg gac act      2880
274 His His His His His His His Arg Gly Gly Glu Pro Pro Gly Asp Thr
275 945             950             955             960
277 ttt gcc ccg ttc cat ggc tat agc aag agc gag gac ctc tct aca ggg      2928
278 Phe Ala Pro Phe His Gly Tyr Ser Lys Ser Glu Asp Leu Ser Thr Gly
279             965             970             975
281 gtc cct aag ccc cct gcg gcc tcc atc ctt cac agc cac agc tac agt      2976
282 Val Pro Lys Pro Pro Ala Ala Ser Ile Leu His Ser His Ser Tyr Ser
283             980             985             990
285 gat gag ttt gga ccc tct ggt act gat ttt acc cgt cgg cag ctc tca      3024
286 Asp Glu Phe Gly Pro Ser Gly Thr Asp Phe Thr Arg Arg Gln Leu Ser
287             995             1000            1005
289 ctt cag gac aac cta cag cac atg ctc tcc ccg ccc cag atc acc atc      3072
290 Leu Gln Asp Asn Leu Gln His Met Leu Ser Pro Pro Gln Ile Thr Ile
291     1010            1015            1020
293 ggt ccc cag agg cca gct ccc tca ggg cca gga ggg ggc agt ggt ggg      3120
294 Gly Pro Gln Arg Pro Ala Pro Ser Gly Pro Gly Gly Gly Ser Gly Gly
295 1025            1030            1035            1040
297 ggc agt ggt ggg ggc ggt ggg ggc cag cca cct ccc ttg cag agg ggc      3168
298 Gly Ser Gly Gly Gly Gly Gly Gly Gln Pro Pro Pro Leu Gln Arg Gly
299             1045            1050            1055
301 aaa tct cag cag ttg aca gtg agt gct gcc cag aaa ccc cgg ccg tcc      3216
302 Lys Ser Gln Gln Leu Thr Val Ser Ala Ala Gln Lys Pro Arg Pro Ser
303             1060            1065            1070
305 agc ggg aac cta ttg cag tcc ccg gaa cca agt tat ggt cct gcc cgt      3264
306 Ser Gly Asn Leu Leu Gln Ser Pro Glu Pro Ser Tyr Gly Pro Ala Arg
307         1075            1080            1085
309 cca cgg caa cag agc ctc agc aaa gag ggc agc att ggg ggc agc ggg      3312
310 Pro Arg Gln Gln Ser Leu Ser Lys Glu Gly Ser Ile Gly Gly Ser Gly
311     1090            1095            1100
313 ggc agc ggt ggc gga ggg ggt ggg ggg ctc aag ccc tcc atc acc aag      3360
314 Gly Ser Gly Gly Gly Gly Gly Gly Gly Leu Lys Pro Ser Ile Thr Lys
315 1105            1110            1115            1120
317 cag cat tcc cag act cca tcc acg ctg aac ccc acg atg ccg gcc tcg      3408
318 Gln His Ser Gln Thr Pro Ser Thr Leu Asn Pro Thr Met Pro Ala Ser
319             1125            1130            1135
321 gag cgg act gta gcc tgg gtg tcc aat atg cct cac ctg tcc gct gac      3456
322 Glu Arg Thr Val Ala Trp Val Ser Asn Met Pro His Leu Ser Ala Asp
323             1140            1145            1150
325 atc gag agt gca cac att gag cgg gaa gag tac aag ctg aag gag tac      3504
326 Ile Glu Ser Ala His Ile Glu Arg Glu Glu Tyr Lys Leu Lys Glu Tyr
327         1155            1160            1165
329 tcg aag tcc atg gac gag agc cga ctg gac agg gtg aag gag tac gag      3552
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